

B. H. CHADBURN,

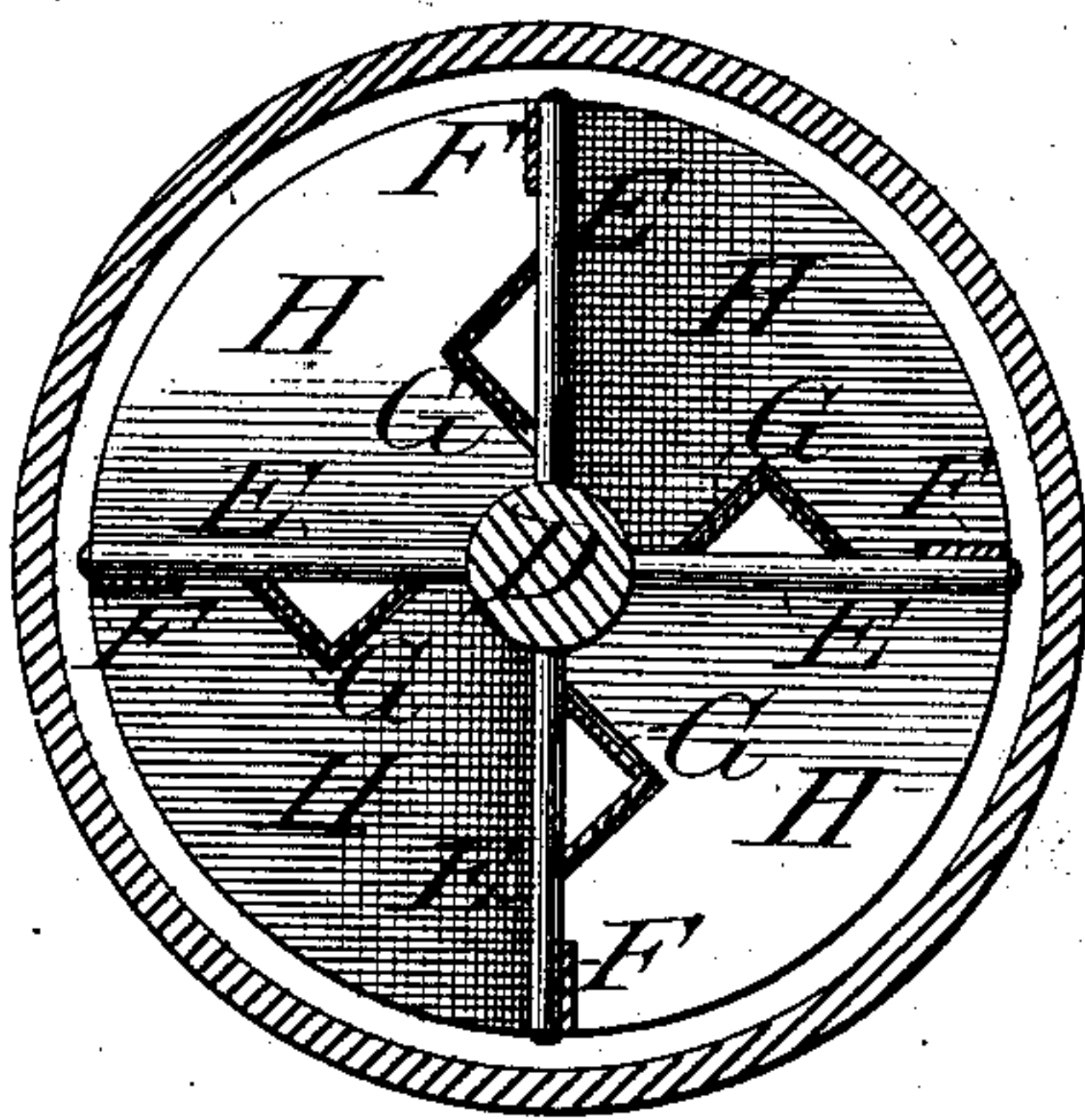
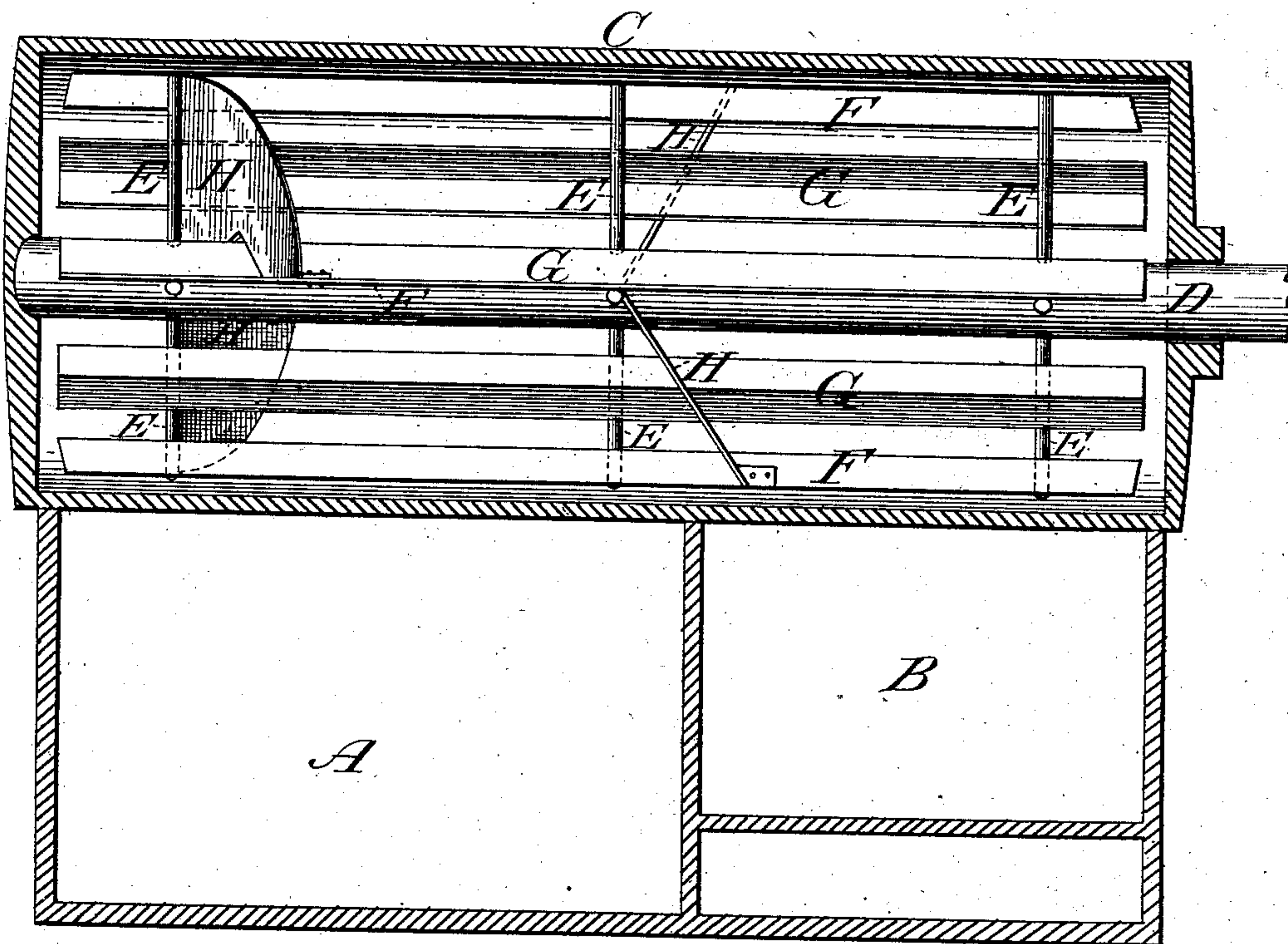
A. E. CHADBURN, Administratrix.

Apparatus for Manufacturing Soap.

No. 224,514.

Patented Feb. 17, 1880.

Fig. 1.



Attest:

Nelson Cross
A. A. Brittan.

Inventor:

Fig. 2.

Benjamin H. Chadburn

UNITED STATES PATENT OFFICE.

BENJAMIN H. CHADBURN, (ADELINE E. CHADBURN, ADMINISTRATRIX,) OF NEW YORK, N. Y.

APPARATUS FOR MANUFACTURING SOAP.

SPECIFICATION forming part of Letters Patent No. 224,514, dated February 17, 1880.

Application filed April 29, 1879.

To all whom it may concern:

Be it known that I, BENJAMIN H. CHADBURN, of the city, county, and State of New York, have invented a new and useful Improvement in Apparatus for Manufacturing Soap, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to that class of soap-making apparatus in which the grease or oil and alkaline matter are placed in a digester or close vessel and formed into soap by the combined agency of heat and agitation.

My invention consists in an improved agitator, in combination with a closed or tightly-sealed digesting-chamber to which heat is applied, as hereinafter set forth.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of an apparatus illustrating my invention. Fig. 2 is a transverse section of the upper portion thereof, showing the mixing-chamber and agitator.

A represents the base of the apparatus; B, the furnace, and C a cylindrical mixing-chamber, through the center of which passes a shaft, D, carrying any desired number of radial arms E E E E. To these arms are attached agitating-blades F F F F, which are formed of iron bars or rods securely fastened to the arms E E E E at their outer extremes, so that when the agitator revolves the outer edges of said blades F F F F shall come within about one-half inch of the inside of the cylinder or mixing-chamber. The ends of said blades should also extend equally near to the inside ends of the mixing-chamber.

The blades G G G G are made of angle-iron, and attached to the arms E E E E about midway between the shaft and the outer blades, F F F F, the convergence of the angle of each blade G being in the direction of the revolution of the agitator, which permits the agitated substances forming the soap to slide over the outside of the said angular blades without frothing or foaming, which is a feature of the highest importance.

H H H H are propelling-blades of quadrant shape, their outer edges being arcs of ninety degrees, each made of light boiler-iron, and

securely attached to the arms E E E E as follows, viz: one set of two blades near the rear end of the shaft and another set near the middle, and at such an angle as to give a gentle motion to the contents of the cylinder toward the front end.

It has been the fault of all rapid agitation in soap-making to make the fatty and alkaline matters in the process of saponification froth and foam, which must result in the production of a spongy imperfect soap. All danger of such a result is obviated by the use of my improved agitator.

The number and size of the blades F, G, and H will depend upon the size of the cylinder or mixing-chamber used and the quantity of soap to be made at a run.

For a cylinder of one ton capacity, being eleven feet long and thirty inches in diameter, the blades F F F F should be about three inches wide, and the blades G G G G should be made of about four-inch angle-iron.

The periphery of the propelling-blades H H H H should run within about one inch of the inside of the cylinder. Four of these blades, arranged in pairs, will be sufficient for any size apparatus. The size of the other blades should be adapted to the size of the cylinder.

This apparatus is capable of making a ton of superior quality of soap in ninety minutes, to produce which the agitators should be made to revolve from fifteen to eighteen times a minute.

The process of making by means of the foregoing-described apparatus is as follows: The materials out of which the soap is to be made are first placed in the cylinder. The cylinder is then tightly closed, and with its contents subjected to a heat of about 360° Fahrenheit, which should produce a steam-pressure from the boiling ingredients of about one hundred and forty pounds, indicated by a steam-gage as ordinarily employed. Meanwhile the agitator is steadily revolved until the soap is perfectly formed, which can be ascertained by means of a try-cock. The soap is then blown out of the cylinder by the steam-pressure, and conveyed through conducting-pipes to the crutching-machines or other receiving-vessels.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

The combination, with a tightly-closed cylinder or mixing-chamber, of the rotary agitator provided with the angular-shaped floats or blades G G G G and with the propelling-

blades H H H H, all constructed as shown and described, and for the purpose specified.

BENJAMIN H. CHADBOURN.

Witnesses:

NELSON CROSS,
A. A. BRITTAN.